SEMICONDUCTOR

MURS2060 MURFS2060 MURS2060D2

POLYIMIDE PASSIVATED SUPER FAST RECTIFIER

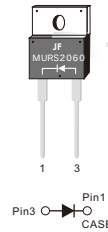
Reverse Voltage - 600 Volts
Forward Current - 20.0Amperes

FEATURES

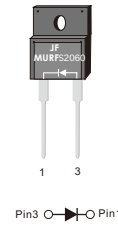
- Plastic package has Underwriters Laboratory Flammability Classification 94V-0
- Ultrafast Recovery Characteristics
- Low forward voltage drop
- Low Reverse Leakage Current
- Soft Recovery Characteristics
- High temperature soldering guaranteed:260°C/10 seconds,
- 0.25"(6.35mm)from case
- Component in accordance to RoHS 2015/863/EU

RoHS COMPLIANT

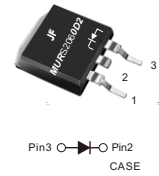
TO-220AC
MURS2060



ITO-220AC
MURFS2060



TO-263
MURS2060D2



MECHANICAL DATA

- Case: JEDEC TO-220AC ITO-220AC TO-263 molded plastic body
- Terminals: Lead solderable per MIL-STD-750,method 2026
- Polarity: As marked
- Mounting Position: Any

TYPICAL APPLICATIONS

- Anti-Parallel Diode
  - -Switching Power Supply
  - -Inverters
- Free wheeling Diode
  - -Motor Controller
  - -Converters
  - -Inverters
- PFC
- Snubber,Clamp diode

PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	20.0A
V_R	600V
I_{FSM}	150A
V_F at I_F=20.0A,125℃	1.60V
Trr typ	24ns
T_{JMAX}	175℃
Diode variation	Sigle die

MAXIMUM RATINGS

(Ratings at 25℃ ambient temperature unless otherwise specified)

Parameter	Symbol	Value	Unit
Maximum repetitive peak reverse voltage	V_{RRM}	600	V
Maximum average forward rectified current	$I_{F(AV)}$	20.0	A
Peak forward surge current 8.3ms single half sine-wave superimposed on rated load (JEDEC method at rated T_L)	I_{FSM}	150	A
Operating junction temperature range	T_J	-55 to+175	℃
Storage temperature range	T_{stg}	-55 to+175	℃

SEMICONDUCTOR

RATINGS AND CHARACTERISTIC OF MURS2060 Series

ELECTRICAL CHARACTERISTCS (TJ=25℃ Unless otherwise noted)

Parameter	Test Conditions		Symbol	Min.	Typ.	Max.	Unit
Breakdown voltage Blocking voltage	IR=200μA		V_{BR} V_R	600	-	-	V
Instaneous forward voltage	TJ=25℃	IF=1.0A	V_F 1)	-	1.10	-	V
		IF=5.0A		-	1.70	-	
		IF=20.0A		-	2.02	2.50	
	TJ=125℃	IF=1.0A		-	0.65	-	
		IF=5.0A		-	1.00	-	
		IF=20.0A		-	1.60	-	
Reverse current	TJ=25℃	VR=600V	I_R 2)	-	2.0	10	μA
	TJ=100℃			-	30	150	μA
	TJ=125℃			-	100	500	
Junction capacitance	4V,1MHz		CJ	-	75	-	pF

Notes: 1.Pulse test: 300 μs pulse width,1% duty cycle

2.Pulse test: pulse width≤40ms

DYNAMIC RECOVERY CHARACTERISTCS (TJ=25℃ Unless otherwise noted)

Parameter	Test Conditions		Symbol	Min.	Typ.	Max.	Unit
Reverse recovery time	IF=0.5A,IR=1.0A, Irr=0.25A		trr	-	24	30	ns
	TJ=25℃	IF=7.5A dIF/dt=200A/μS VR=400V		-	38	-	
	TJ=125℃			-	57	-	
Peak recovery current	TJ=25℃		I_{RRM}	-	2.8	-	A
	TJ=125℃			-	4.6	-	
Reverse recovery charge	TJ=25℃		Qrr	-	50	-	nc
	TJ=125℃			-	105	-	

THERMAL CHARACTERISTCS

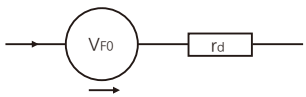
Parameter	Symbol	TO-220AC/TO-263	ITO-220AC	Unit
Typical thermal resistance 3)	$R\theta_{JC}$	2.5	4.5	℃/W

3.Thermal resistance from junction to case

AVAILABALE PACK INFORMATION

Product code	Pack	Carton Size L×W×H(mm)	Inner Box Size L×W×H(mm)	Tube Length (mm)	Inner Box Number	Tube Number Per A Inner Box	Part Number Per A Tube	Quantity(carton) (K)
MURS2060-TO-220AC	Tube	565×225×170	548×151×37	540	5	20	50	5
MURFS2060-ITO-220AC	Tube	565×225×170	548×151×37	540	5	20	50	5
MURS2060D2-TO-263	Tube	565×225×170	548×151×37	538	5	20	50	5
Product code	Pack	Carton Size L×W×H(mm)	Inner Box Size L×W×H(mm)	Reel Diameter (mm)	Inner Box Number	Reel Number Per A Inner Box	Part Number Per A Reel	Quantity(carton) (K)
MURS2060D2-TO-263	Reel	364×364×235	330×330×38	φ330	5	1	800	4

Equivalent circuits for power loss calculation



V_{f0}: threshold voltage 1.15V

r_d: Dynamic resistance 0.06Ω

Forward power loss of diode=$V_{F0}\times I_{F(AV)}+r_d\times I^2_{F(RMS)}$

FIG.1-FORWARD CURRENT DERATING CURVE

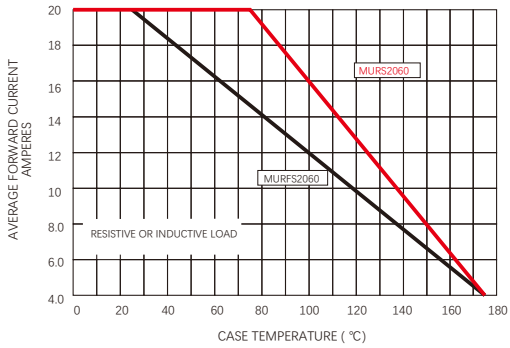


FIG.2-MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

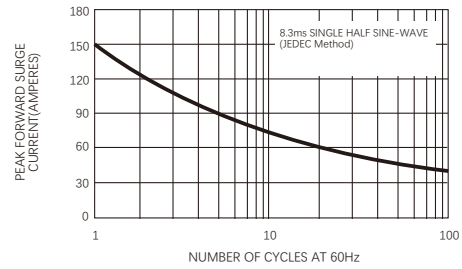


FIG.3-TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

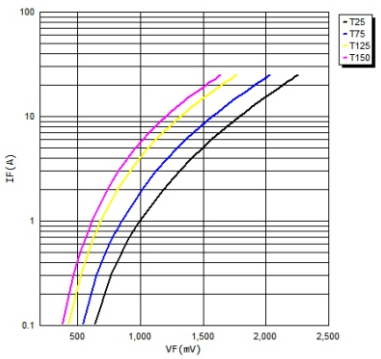


FIG.4-TYPICAL REVERSE CHARACTERISTICS

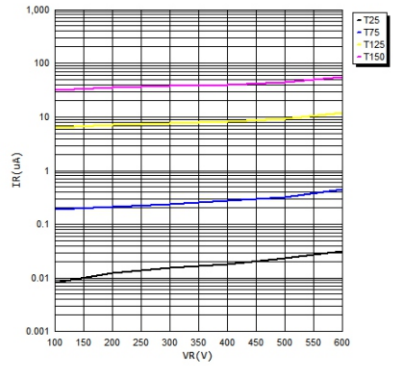


FIG.5-TYPICAL JUNCTION CAPACITANCE

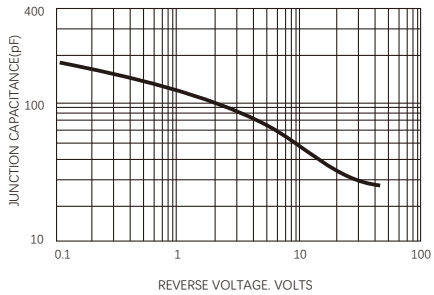


FIG.6- TYPICAL trr,ta,tb vs. FORWARD CURRENT

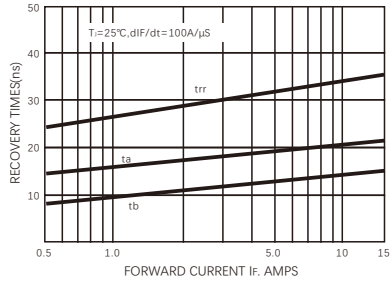
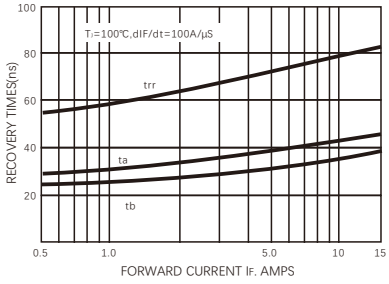
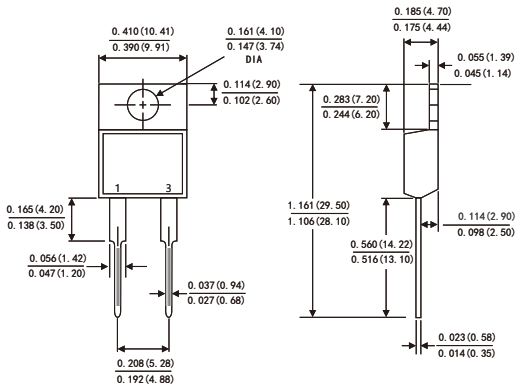


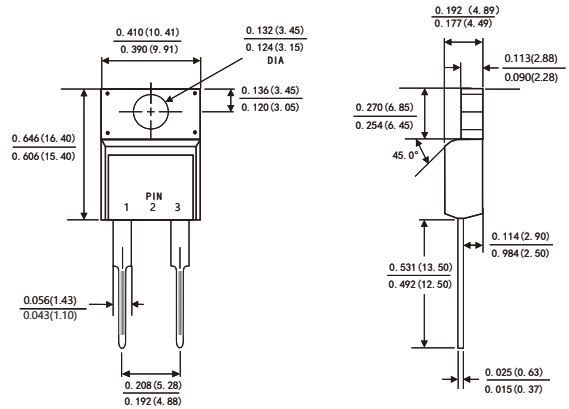
FIG.7- TYPICAL trr,ta,tb vs. FORWARD CURRENT



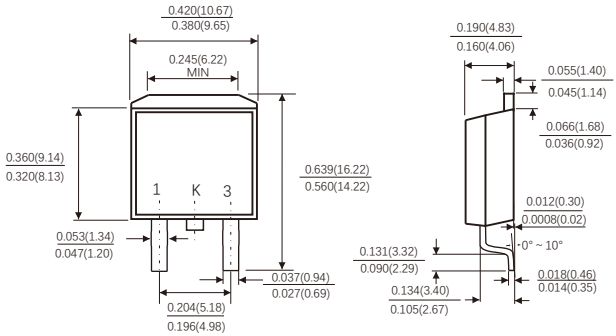
TO-220AC



ITO-220AC

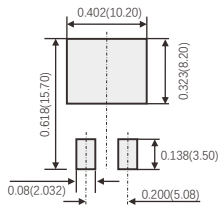


TO-263



Suggested Pad Layout

(TO-263)



（设计者可参考推荐值根据焊接工艺
要求自行确定适合的焊盘尺寸）
(Designers can refer to the recommended
values according to the manufacturing process
requirements to determine the appropriate pad size)

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